ON SOME MISAPPLIED MOLLUSCAN GENERIC NAMES.

By Tom Iredale.

Read 9th December, 1910.

Whilst engaged upon the determination of Kermadec Marine Molluscs I noted some generic names which seemed to require investigation. The results of my researches I give herewith.

Omalaxis.

Omalaxis was introduced by Deshayes (Ency. Méthod. Vers., vol. iii, p. 659, 1832) for two Eocene fossils: the first was *Solarium disjunctum*, Lamarck (Annals du Mus. Paris, vol. iv, p. 55, No. 8, 1804); the second, called *Omalaxis bifrons*, was unaccompanied by any note of its prior appearance in literature. In the Coq. Fossil. Paris, vol. ii, p. 221, the following year, Deshayes changed the name of his genus to *Bifrontia*. When so doing he mixed up his references, and has thereby misled all subsequent writers. After translating into Latin the diagnosis of *Omalaxis* he had previously given, he definitely stated "Ce genre est composé du *Solarium disjunctum* et des autres coquilles . . ." He then placed *Bifrontia bifrons* (founded on *Solarium bifrons*, Lamarck, loc. cit., No. 9, 1804) as his first species, and in its synonymy named *Omalaxis disjunctus* of the Ency. Méthod. That this was purely an error can be easily ascertained by making comparisons of the diagnoses given for each species. This action has, however, caused the citation of *Solarium bifrons*, Lam., as the type of *Omalaxis*. As this shell differs conchologically from *Solarium disjunctum*, Lam., it is important that the correct shell be quoted as type. From an examination of these Eocene fossils I believe these are subgenerically separable, and it would have been gratifying to have been able to preserve *Bifrontia* for the 'bifronted' species, but the sentence above quoted forbids this. To those who have not access to specimens of these fossils I recommend a study of the *Iconographie complète Coq. foss. Env. Paris*, by Cossmann and Pissarro. In the second volume (1909), on pls. xvi and xvii, are given figures of ten species of *Homalaxis*, which show clearly the peculiar characters of this group. A fair representation of *Solarium bifrons*, Lam., is shown by figs. 106–11, pl. xvi, whilst the type of *Omalaxis*, *Solarium disjunctum*, Lam., is well figured on pl. xvii, figs. 106–10.

A Sicilian fossil was described by Philippi (Enum. Moll. Sicil., vol. ii, p. 225, pl. xxviii, fig. 11, 1844) as *Bifrontia* (?) *zanclæa*. A recent shell dredged off Madeira by MacAndrew was recorded by Gray (Ann. Mag. Nat. Hist., vol. xi, p. 260, 1853) as identical with Philippi's fossil. Gray pointed out that in the recent shell the last whorl was uncoiled as in the fossils from Paris, and concluded that Philippi's generic location was correct; the live shells gave the opercular characters, which were 'Torinioid'. No other details, as of sculpture or measurements, were adduced. Hanley described and figured the

recent shell (Thes. Conch., vol. iii, p. 246, pl. 254 (v), figs. 101–3, 1863) as *Bifrontia zanclæa*, Phil., and noted that it differed slightly from the fossil as known to him by literature only. Hanley gave no measurements, but alongside the figures was placed a line denoting natural size. It is easily seen from a criticism of the figures that Hanley and Philippi were dealing with different shells. Yet it would appear that no one has ever taken the trouble to compare the recent and fossil shells. First, Philippi's figures are of a shell which does not uncoil, though measuring 11 mm. Hanley's shell, of which the last whorl is uncoiled, measures 4 mm. only. I have examined four fossils which agree well with Philippi's description and figure, and which I consider to be typical; three of them measured 10 mm., the fourth 8·5 mm. in diameter. None of them shows any sign of uncoiling; there are two keels close together above the periphery, both crenulated; there is a fine sculpture of radial growth-lines and concentric threads. I have seen MacAndrew's shells upon which Gray's note was written. Probably they served for Hanley's description and figures. The type tablet contains four shells, the largest under 5 mm. in diameter, and in all the last whorl is unrolled; above the periphery there is only one crenulated keel, and no secondary sculpture. It is necessary that these shells should have a name, and therefore for the recent shell described and figured by Hanley as *Bifrontia zanclæa*, Philippi, I propose the new specific name of *Macandrewi*, and indicate as types the shells in the British Museum dredged by MacAndrew off Madeira.

In the Manuel de Conch., p. 714, 1885, Fischer proposed *Pseudomalaxis* as a subgenus of *Torinia*. He defined it thus: "Coquille discoide, enroulée, planorbiforme, à tours quadrangulaires; opercule convexe, obtusément conique, saillant. Distribution, Mediterranée, Madère (*P. Zanclæa*, Philippi)." I contend this refers to the shell I have just named *Macandrewi*, and that the type of *Pseudomalaxis* must be *P. Macandrewi*, Iredale.

Fischer (loc. cit., p. 715) used *Homalaxis* for the Eocene fossils, of which the opercular characters are unknown. He queried the identity of *Pseudomalaxis* with the prior *Ilaira* of H. & A. Adams, but the latter has no relationship, as I shall presently show.

Verrill described *Omalaxis nobilis* (Trans. Conn. Acad., vol. vi, p. 423, pl. xliv, fig. 12, 1885) from American waters, and showed the operculum of the American shell to be Trochoid, not 'Torinioid'. In the Bull. Mus. Comp. Zool. Harv., vol. xviii, p. 276, 1889, when Dall recorded this species he gave a history of the attempts to improve the orthography of the name, and then wrote: "*Omalaxis* is divided by Dr. Fischer. *O. zanclea*, Phil., which has a *Torinia*-like operculum, is placed under *Torinia* with the name of *Pseudomalaxis* (possibly identical with *Ilaira*, H. and A. Adams), while the original name is kept for those having a simple thin operculum of many whorls." As shown above this last statement is inaccurate.

Later, dealing with the Tertiary Mollusca of Florida (Wagner Free Inst. Sci., vol. iii, p. 331, 1892), Dall again approached the matter.

Accepting *Solarium bifrons* as the type of *Omalaxis*, he noted it differed conchologically from Lea's *Orbis rotella* and Verrill's *Omalaxis nobilis*, whilst these agreed in shell characters with Fischer's '*zanclæa*', but the opercular characters of the two latter were known to be different. Arguing that the American fossil and recent forms might be allied, and that the European fossil and recent forms went together, he suggested a new name *Discosolis* for the American forms, indicating Verrill's *O. nobilis* as type, and subordinated this to Dunker's genus *Discohelix*, introduced for a European Lias fossil. It appeared from the statement that Dall advised the rejection of *Omalaxis* for shells like *O. nobilis*, Verrill, yet in 1900 Dall and Simpson, writing on the Mollusca of Porto Rico (Bull. Fish. Comm., 1900, p. 432, pl. liv, fig. 12), described *Omalaxis exquisita*, a species conchologically comparable with *O. nobilis*, Verrill.

Sacco (I Mollus. Terr. Terz. Piemonte, pt. xii, p. 75, 1892) used generically *Discohelix* and subgenerically *Pseudomalaxis* for fossils agreeing closely with the true *B.* ? *zanclæa*, Philippi, whilst in the Iconographia, Cossmann and Pissarro, *Discohelix* is used for a shell apparently like the true *B.* ?*zanclæa*, Philippi, and another fossil is referred to the subgenus *Pseudomalaxis* of *Discohelix*. This usage is, of course, due to the confusion of the recent with the fossil shell; a geological student being conversant with the latter and regarding it as the type of *Pseudomalaxis*, whilst, as I have pointed out, the recent shell, now called *P. Macandrewi*, Iredale, must be considered the type, and the genus restricted to shells agreeing in character with that species. Before epitomizing my conclusions I wish to make a few remarks about some shells described as *Bifrontia* or *Omalaxis*.

When Dall introduced *Discosolis* he described a new species as *Discohelix* (*Discosolis*) *retifera* (loc. cit., p. 332, pl. xix, figs. 1*b*, *c*, 1892). I can see no characters separating that species from *Heliacus*. Harris (Cat. Tert. Moll. Brit. Mus., vol. i, p. 245) has pointed out that *Torinia*, Gray, was a nude name until after *Heliacus* had been properly introduced by D'Orbigny (Ramon de la Sagra, Nat. Hist. d'Île de Cuba, vol. i, p. 68, 1842); and two flattened species, *H. discoideus*, Pease, and *H. cælatus*, Hinds, show juveniles agreeing with *D. retifera*, Dall, in every conchological character. A very similar shell has been described by Melvill as *Solarium* (*Torinia*) *omalaxis*.

Melvill and Standen (Ann. Mag. Nat. Hist., vol. xii, pp. 298, 299, 1903) introduced two new species of *Homalaxis*, as *cornu-ammonis* and *rotula-catherina*, and wrote: "We cannot exactly follow the reasons which prompt Dr. Fischer (Manuel de Conch., p. 714) to propose a subgenus *Pseudomalaxis* for *H. zanclea*, Phil., and consider all the true *Homalaxis*, Desh., tertiary fossils. In our opinion both the species now described belong to the typical genus, and it would be impossible to disassociate *H. Pernambucensis* (Wats.), described as a *Bifrontia* from them." I believe that this statement is based upon an examination of the recent '*zanclæa*', as at that time *Solarium bifrons*, Lam., was considered the type of *Omalaxis*, and this shell is very unlike the new species above named. I should place these two

with *P. Macandrewi*, Iredale, as they agree well in conchological characters, though it may be that they will be found to differ when their opercula are obtained. Murdoch and Suter's *Omalaxis amœna* (Trans. New Zeal. Inst., vol. xxxviii, p. 293, pl. xxiv, figs. 30–2, 1905 (1906)), which, when described, was compared with Dall's *D. retifera*, is certainly also a species of *Heliacus*.

However, Hedley (Memoirs Aust. Mus., vol. iv, p. 351, fig. 74, 1903) proposed a new species, *Omalaxis meridionalis*, which seems to agree quite closely with the fossil *Bifrontia* (?) *zanclæa*, Philippi, and this is of much interest, as Tate has often remarked upon the survival of European Eocene in Australian forms, e.g. Trans. Roy. Soc. South Aust., vol. xxiii, p. 243, when referring a *Rissoina* to a Parisian Eocene group. Hedley's *Omalaxis radiata* (Proc. Linn. Soc. N.S.W., vol. xxxii, p. 506, pl. xx, figs. 53–5, 1907) looks like a *Pseudomalaxis*. Watson's *B. Pernambucensis* (Chall. Zool. Rep., vol. xv, p. 137, pl. viii, figs. 1–3, 1885), as Hedley has pointed out (Rec. Aust. Mus., vol. vi, p. 357, 1907), would be better placed elsewhere, though I doubt whether *Liotia* is a suitable genus, as shown hereafter.

Before leaving this subject it may be of interest to note the effect of the presence of the 'anastrophic' apex in the determination of the relationship of these shells. This term was introduced by Dautzenberg and Fischer (Mém. Soc. Zool. France, vol. ix, p. 57, 1896) for the inverted pseudosinistral apex observed in shells belonging to the genus *Solarium*. It is characteristic of shells belonging to the genera *Architectonica* (= *Solarium*) and *Heliacus*, and of all the shells previously referred to *Omalaxis* and *Bifrontia*, save *B. Pernambucensis*, Watson. Consequently I advocate the transference of this shell from the neighbourhood of these Omalaxoid shells.

I would summarize the results I obtain as follows:—

Omalaxis, Deshayes, Ency. Méthod. Vers., vol. iii, p. 659, 1832. Type: *Solarium disjunctum*, Lam. (Ann. Mus. Paris, vol. iv, p. 55, 1804). Should be restricted to fossil forms agreeing with the type, and eliminated for the present from the study of recent conchology. *Bifrontia*, Deshayes (Coq. Foss. Paris, vol. ii, p. 221, 1833) is an absolute synonym, having the same shell as type.

Bifrontia zanclæa, Gray, Ann. Mag. Nat. Hist., vol. xi, p. 260, 1853; Hanley, Thes. Conch., vol. iii, p. 246, pl. 254 (v), figs. 101–3, 1863. Is specially distinct from *Bifrontia* (?) *zanclæa*, Phil. (Enum. Moll. Sicil., vol. ii, p. 225, pl. xxviii, fig. 11, 1844), and should bear the name *Pseudomalaxis Macandrewi*, Iredale.

Pseudomalaxis, Fischer (Man. de Conch., 1885, p. 714). Was introduced for the recent shell confused with Philippi's fossil, and therefore the type is *P. Macandrewi*, Iredale. I do not consider it should be used for the fossil forms agreeing with the true *Bifrontia* (?) *zanclæa*, Philippi. Probable members of this genus are the shells described as *Homalaxis cornu-ammonis*, Melvill & Standen, *H. rotula-catherina*, Melvill & Standen, and *Omalaxis radiata*, Hedley.

Discohelix, Dunker, *Palæontographica*, vol. i, p. 132, 1847. Type: *D. calculiformis*, pl. xviii, fig. 11. Might be used for *Bifrontia* (?) *zanclæa*, Philippi, and here, tentatively, may be referred *Omalaxis*

meridionalis, Hedley, though perhaps the wiser course would be the introduction of a new genus or subgenus for these latter.

Discosolis, Dall, Trans. Wagner Free Inst. Sci., vol. iii, p. 331, 1892. Type: *Omalaxis nobilis*, Verrill, Trans. Conn. Acad., vol. vi, p. 423, pl. xliv, fig. 12, 1885. May be used for the American shells with Trochoid opercula; and *O. exquisita*, Dall & Simpson, may be here located until the opercular characters are known.

Discohelix (*Discosolis*) *retifera*, Dall. Should be transferred to *Heliacus*, as also should *Omalaxis amœna*, Murdoch & Suter.

Bifrontia Pernambucensis, Watson. Does not belong to this group at all, but I am unable to definitely locate it in any known genus.

Trachysma.

This genus was introduced by Sars (Moll. Reg. Arct. Norv., p. 211, 1878) as of Jeffreys MSS. for a minute shell identified by Jeffreys as *Cyclostoma delicatum*, Phil., and, according to Jeffreys, identical with '*Archithœa catenularia*, Costa'. Apparently Sars was sceptical as to this last conjunction, else why did he not use '*Archithœa*'? The facts are: Philippi described a Sicilian fossil as *Cyclostoma* (?) *delicatum* (Enum. Moll. Sicil., vol. ii, p. 222, pl. xxviii, fig. 3, 1844); its dimensions are given as "Testa $5\frac{1}{3}'''$ alta, $5\frac{2}{3}'''$ lata". Costa proposed his genus *Architea* (Annuario Mus. Zool. Napol., vol. v, p. 52, 1869), with the new species *catenulata*, p. 53, pl. i, fig. 4. The beautiful figures there given indicate a shell quite distinct from Philippi's fossil; the size is 13 × 9 mm., and its multispiral operculum is 6 mm. in diameter. The shell Sars described, upon Jeffreys' advice, as *Trachysma delicatum*, Phil., measured 1·1 × 1 mm., with a variety *expansa* 1·4 × 1·2 mm. That these three shells are identical seems an absurd proposition, whilst I have not the least doubt that they are generically distinct. Poppe (Abh. Ver. Brem., vol. viii, p. 364, 1883) records that *Trachysma delicatum*, Phil., was found alive in the inlet of the Jade, North-West Germany, and that the dentition was Tænioglossate. It is difficult to say what Poppe handled, but it may have been Sars' shell. Fischer (Man. de Conch., p. 714, 1885) correctly retained *Architea*, which he wrote *Archytæa*, indicating its probable relationship with *Solarium*. He doubtfully included *Trachysma* in the family Adeorbiidæ, classing Philippi's fossil and Sars' recent shell together, and wrote, "Cette petite coquille classée, par O. Sars, dans le voisinage des *Adeorbis*, a été successivement considérée comme *Cyclostoma*, *Janthina*, *Architæa*." I have been unable to trace the fossil *Cyclostoma* (?) *delicatum*, Philippi, in recent geological literature, so am unable to give late opinions as to its generic location, but I feel certain it will not be placed in Sars' genus *Trachysma*, the type of which should *not* be cited as *delicatum*, Philippi, whatever else it may be called.

Liotia.

Liotia has been quoted as of Gray (Syn. Brit. Mus., 1840 and 1842), but in these places only the nude name occurs, with no indication as to species. In the Proc. Zool. Soc. Lond., 1847, p. 145, there appears

"136. *Liotia*, Gray, Syn., 1840. *Delphinula*, sp. Gray, Sow. *Del. cancellata*, Gray". Thus definitely it is stated that the type of *Liotia* is the shell described as *Delphinula cancellata*, Gray. That species was introduced in the Spic. Zool., 1828, p. 3, from Arica, Peru, and there the operculum is described as horny.

In the Fig. Mollusc. Anim., vol. iv, p. 88, 1850, Gray provided a family Liotiadæ, with the diagnosis "Operculum horny, with an external calcareous coat formed of numerous separate pearl-like shelly particles placed in spiral lines". The first genus is—"*Liotia*, n. 136. Shell variced; lips thick. 1. *L. granulosa*, *Delphinula g.*, Dunker. 2. *L. Krausii*, *Solarium cancellatum*, Kr. 3. *L. cancellata*, *Delph. c.*, Gray = *D. Cobiensis*."

This is of much interest for two reasons: first, Gray's type has taken third place; second, none of the three species quoted agrees with the generic diagnosis given, and only of the last was the operculum known, so that their reference to the family was quite doubtful. Dunker's *Delphinula granulosa* has been identified with *C. granulata*, A. Ad., for which H. and A. Adams introduced *Cynisca* (Gen. Rec. Moll., vol. i, p. 406, 1854), and I believe the opercular characters are yet unknown, whilst the shell is not variced. Krauss' *Solarium cancellatum*, known to me only by figures, appears to be a thin unvariced shell of which the operculum is unknown. Tryon transferred it to *Homalogyra*, but it requires some other resting-place. As pointed out above, Gray's own *cancellata* has a horny operculum, and the shell is not variced, whilst of its lips he wrote "peristomate orbiculari completo, margine tenui". H. and A. Adams (Gen. Rec. Moll., vol. i, p. 403, 1854) reduced Gray's family to sub-family rank under Trochidæ. They gave as examples *L. Peronii*, Kiener, animal and operculum, and *L. scalarioides*, Reeve. These species agreed with Gray's 1850 diagnosis, and have usually been regarded as typical.

There is a group of molluscs agreeing with *Delphinula cancellata*, Gray, and to these must be restricted the name *Liotia*. Their relationship with the *Peronii*-like molluscs seems to me quite doubtful, and I would quite separate the latter from the true *Liotia*. There seem to be few aspirants for the vacant position. *Arene* was proposed as a sub-genus of *Liotia* by H. and A. Adams (loc. cit., p. 404) with the characters "Shell radiately painted with red; whorls muricated, the last stellate at the periphery, or angulated and keeled; peritreme more or less varicose". As species were quoted "*cruentata*, Muhlf., *muricata*, Humph., and *Tamsiana*, Dkr." If we take the first species as type, according to Dall (Bull. Mus. Comp. Zool., vol. xviii, p. 386, 1889) its opercular characters are—"In *Arene cruentata* I find the operculum solid, thick, multispiral, with hardly a trace of horny matter, except at the margin. Externally it is concave, with a small central pit corresponding to a small round elevation on the inner side." The only other name I can trace applicable to the *Peronii* group is *Liotina*, introduced by Fischer (Man. de Conch., p. 831, 1885) as of Munier-Chalmas, the type of which is the fossil *L. Gervillei*, Defrance. Of course we do not know the opercular characters of the fossil, but conchologically the

recent and fossil shells agree well. It will cause little confusion to accept this name, and I do not think much objection can be urged against its adoption. It is certainly more appropriate to the *Peronii* shells than *Liotia*.

Quoyia.

In the Ency. Méthod. Vers., vol. ii, 1832, after p. 552 is included a tabular system of molluscs, and therein, next to *Planaxe*, is included *Quoyie*. No Latin equivalents are given, yet it would appear that this has been quoted by some writers, e.g. Tryon, as the introduction of *Quoyia*.

In the Zoology of Beechey's Voyage, 1839, Molluscous Animals, p. 125, Gray gave a description of the genus *Quoyia*, neither ascribing it to anyone nor claiming it as new. In the Proc. Zool. Soc. Lond., 1847, p. 138, Gray quoted it as "*Quoyia*, Desh. MSS., 1830; Gray, 1839; *Planaxis decollatus*, Quoy and Desh." As a synonym of this genus is given *Fissulabria*, T. Brown, Edin. Jour. Nat. Hist., 1836. It was this entry, which Mr. C. Davies Sherborn kindly brought to my notice, that caused this inquiry. The Edinburgh Journal of Natural History and Physical Sciences has upon the title-page "Conducted by William Macgillivray", and as the article in question is unsigned I conclude the genus should be credited to Macgillivray. I have been unable to trace the origin of its reference to Brown further than Gray, as above.

Macgillivray called the genus *Fissilabia*, the species name selected being *fasciata*; three fair recognizable features are given, and its habitat was supposed to be New Holland. Consequently *Fissilabia* must displace *Quoyia*, but the species name will remain *decollata*, as Quoy and Gaimard's name has priority. Thus we have *Fissilabia*, Macgillivray, 1836 = *Quoyia*, Gray, 1839. Type: *F. fasciata*, Macgil. = *Planaxis decollata*, Quoy & Gaimard, 1833 (Zool. de l'Astrol., Zool., vol. ii, p. 489).

Adeorbis.

Sacco (I Mollus. Terr. Terz. Piemonte, pt. xxi, p. 55, 1896) has pointed out that *Tornus*, Turton, 1829, was introduced for *Helix subcarinatus*, Montagu. I have been unable to verify this statement and have not seen any refutation. If it be correct, then *Tornus* must replace *Adeorbis* (as Sacco proposed), which was not introduced by Searles Wood until 1842 (Ann. Mag. Nat. Hist., ser. 1, vol. ix, p. 530). Four species were included in *Adeorbis*; the first was described as *striatus*, and figured on pl. v, figs. 4–6; the next two are nude names; the last was *subcarinatus*, Montagu. By all the laws the first should have been accepted as type, but Gray in the Proc. Zool. Soc. Lond., 1847, designated *subcarinatus* as type, and this designation has been followed. Consequently *Adeorbis* would become a pure synonym of *Tornus*. Sacco incorrectly has used *Adeorbis* for the shells typified by *striatus*, which Searles Wood himself identified with *Valvata striata*, Philippi (Enum. Moll. Sicil., vol. i, p. 147, pl. ix, figs. 3*a–c*, 1836). This species was later made the type of a new genus, *Circulus*, by Jeffreys (Brit. Conch., vol. iii, p. 315, 1865).

I have put these facts forward as it seems important that Sacco's discovery should be confirmed or otherwise, and *Adeorbis* placed upon a secure basis or rejected.

Ilaira.

Introduced as a subgenus of *Liotia* (Gen. Rec. Moll., 1854, p. 405) for the species *Delphinula evoluta*, Reeve, this name has given trouble owing to the similarity of the diagnosis to shells commonly referred to *Omalaxis*. I have pointed out that 'Omalaxoid' shells have anastrophic apices. The type lot of *evoluta*, though superficially similar to some 'Omalaxoid' shells, as instance *Pseudomalaxis Macandrewi*, Iredale, differ *in toto* when critically examined. They retain their opercula, which at once separates them from that group, as it is horny, multispiral. From *Discosolis nobilis*, Verrill, they are differentiated by their apices; in *Ilaira evoluta* the apex is minute and dextral.

The shells are quite solid and have the character of *Liotina*, and I am inclined to endorse the action of the brothers Adams in placing them near that genus. They quite recall such a shell as *Liotina discoidea*, Reeve.

Haliotis.

In his Conch. Syst., vol. ii, 1810, Montfort introduced *Padollus* for *rubicundus*, pp. 114–15, and retained *Haliotis* for *asininus*, pp. 118–19. He definitely stated "Espèce servant de type au genre", so that it seems to me that Montfort's action must be accepted, as *asininus* is one of the original Linnean species. Pilsbry, in the Man. Conch., vol. xii, p. 75, 1890, accepted Gray's designation of 1847, and treated Montfort's *Haliotis* as a new genus. But I believe that view to be incorrect, and that we must follow Montfort in his separation of the genus *Haliotis*.

Newtoniella.

Cossmann (Ann. Soc. Roy. Malac. Belg., vol. xxviii, for the year 1893, p. 18) proposed *Newtoniella* to replace his own *Newtonia* (Annuaire Géol., vol. viii, 1891, p. 721), preoccupied. *Newtonia* was provided as a substitute for *Cerithiella*, Verrill (Trans. Conn. Acad., vol. v, p. 522, 1882), which itself had been introduced on account of the name *Lovenella*, Sars (Moll. Reg. Arct. Norv., p. 187, 1878), being ineligible through a prior use of that name. The type of *Lovenella* was *Cerithium metula*, Lovén, and as no other type was designated at the times of introduction, consequently that species became the type of *Cerithiella*, *Newtonia*, and *Newtoniella*. In the Ann. Soc. Roy. Malac. Belg. for the year 1896 (1899), p. 29, Cossmann named *Cerithium clavus*, Lamarck, as type of *Newtoniella*, but that action cannot be recognized. Without a true knowledge or appreciation of the facts *Newtoniella* has been allowed to gain an entry into recent conchological literature.

Cossmann claimed that *Cerithiella*, Verrill, was invalidated by *Ceritella*, Morris & Lycett (Mon. Gt. Ool. Moll., Palæont. Soc., 1850, p. 37), and in my opinion the two names are sufficiently

distinct for both to stand. Consequently, according to the nomenclatorial laws at present in force, *Newtoniella* must be rejected, and *Cerithiella*, Verrill, be restored. When looking into this matter I met with a paper in the Rev. Critique Paléozool., vol. iv, 1900, in which Cossmann added rather notably to the already burdened synonymy of recent conchology. The title of this paper, "Rectifications de Nomenclature," seemed to me inappropriate. On p. 42 M. Cossmann proposed *Garrettia* to replace *Libera*, Garrett, which he contended was preoccupied by *Libera*, de Haan, 1825. But six years previously Pilsbry (Man. Conch., ser. II, vol. ix, p. 23), working on the genus *Libera*, Garrett, noticed de Haan's use and wrote "which was not proposed as a generic name, and is in no sense such". Reference to de Haan's work proved the accuracy of Pilsbry's statement, and the superfluity of Cossmann's introduction. Moreover, *Garrettia* had been previously used by Semper.

Cossmann next invented *Porcupinia* to be used for *Tharsis*, Jeffreys, preoccupied but three years before Miss Bush (Trans. Conn. Acad., vol. x, p. 113), working upon these molluscs, had introduced *Tharsiella*, so that Cossmann's name is another synonym.

Perhaps the most interesting (I had nearly used a stronger word) case is on the next page, when Cossmann concocted *Tiberiola*, under the impression that *Tiberia*, Jeffreys, was preoccupied by *Tiberia*, Monterosato, whereas they were both used for the same shell, Monterosato crediting it to Jeffreys MS.!

Cossmann also provided *Hoylia*, as he urged *Histiopsis*, Hoyle, was ineligible on account of a prior *Histiops*. This has been a debatable point, so I would here give Cossmann the benefit of the doubt. In the preceding cases I consider that Cossmann's action merits condemnation.

Rafinesque's *Analyse de la Nature*, 1815.

This work, which appears to be a very scarce one, has been recently brought into prominence through the fact that some of the names proposed in it have to be used owing to the ineligibility of some commonly accepted names. I had great difficulty in seeing this book and therefore consider a few notes may be acceptable, and also give a list of the valid names proposed by Rafinesque. This writer proposed a classification of Nature, introducing new names for almost all his groups. Thus the Mollusca appear as Classe Apalosia, which he divided into two Sous-Classes Cephadelia and Acephalia. The Cephadelia he divided into four orders, Cephalopodia, Pteropodia, Gasteropodia, and Spironotia; the Acephalia into two orders, Bivalvia and Polcteria. Then numerous minor divisions are all named, and then the names of the genera he recognized follow. No descriptions are offered, and all the names he claims as his own are followed by R. Fortunately the majority of these names are nude and hence of no consequence; but unfortunately when the look, formation, or sound of a prior name did not please him he proposed a substitute, and in all the cases when the offending name is correctly cited so must the substitute be considered.

The names correctly (!) proposed by Rafinesque in the Mollusca are as follows:—

p. 140. *Ceramus*, R., for *Ammonoceratites*, Lam.
Pachymus, R., for *Hippurites*, Lam.; *Cornucopia*, Thomson.
p. 141. *Clione*, R., for *Clio*, Brown.
Pleuropus, R., for *Scyllea*, L.; *Glaucus*, Lam.
p. 142. *Agenor*, R., for *Acera*, Cuv.
Euphurus, R., for *Tritonia*, Lam.
Bullinia, R., for *Bullea*, Lam.
Bullaria, R., for *Bulla*, L.
Conchulus, R., for *Concholepas*, Lam.
p. 143. *Phymotis*, R., for *Stomatella*, Lam.
Puparia, R., for *Pupa*, Lam.
Amphibulia, R., for *Amphibulimus*, Lam.
p. 144. *Melanidia*, R., for *Melania*, Lam.
Physina, R., for *Physa*, Drap.
Colyma, R., for *Helicina*, Lam.
Bolina, R., for *Phasianella*, Lam.
Laphrostoma, R., for *Neritina*, Lam.
Viviparella, R., for *Vivipara*, Lam.
Praxidice, R., for *Delphinula*, Lam.
Turbonus, T., for *Turbo*, L.
p. 145. *Cassinia*, R., for *Cassis*, Brug.
Iæranea, R., for *Fasciolaria*, Lam.
Hallirhea, R., for *Pyrula*, Lam.
Fusinus, R., for *Fusus*, Lam.
Nassaria, R., for *Nassa*, Lam.
Terebraria, R., for *Terebra*, Brug.
Harparia, R., for *Harpa*, Lam.
Peristera, R., for *Columbella*, Lam.
Mitraria, R., for *Mitra*, Lam.
Olivaria, R., for *Oliva*, Brug.
Terebrina, R., for *Terebellum*, Lam.
Conulus, R., for *Conus*, L.
p. 146. *Solenaria*, R., for *Solen*, L.
Myarina, R., for *Mya*, L.
Amathusia, R., for *Panorpa*, Lam.
Cycladea, R., for *Cyclas*, Lam.
p. 147. *Heterocarda*, R., for *Cardita*, Brug.; *Glossus*, Poli.
Capsaria, R., for *Capsa*, Lam.
Trigella, R., for *Trigonia*, Brug.
Migonitis, R., for *Erycina*, Lam.
Unionea, R., for *Unio*, Brug.
Arcaria, R., for *Arca*, L.; *Daphne*, Poli.
Pernaria, R., for *Perna*, Brug.
Pinnula, R., for *Pinna*, L.; *Chimera*, Poli.
Malleolus, R., for *Malleus*, Lam.
Cuculina, R., for *Cucullea*, Lam.
Limella, R., for *Lymnea*, Poli.
Pedinus, R., for *Pedum*, Lam.
Limaria, R., for *Lima*.
p. 148. *Pectenus*, R., for *Pecten*, Brug.
Calceolina, R., for *Calceola*, Lam.
Cranicella, R., for *Crania*, Lam.
Cameola, R., for *Chama*, L.

The most irritating feature of this work is that though many of these substitute names are valueless as such, they are valid as incapacitating later correctly introduced names. The insecurity of

names due to such prior substitutes, until the whole of Rafinesque's names are exploited, is exemplified in his other classes. I looked through the multitude of names, and noted three (there are possibly many more) bearing on Mollusca.

On p. 118 *Amycla*, R., will invalidate *Amycla*, H. & A. Adams. On p. 123 *Amalthea*, R., settles the question of the use of *Amalthea*, Schumacher, 1817, in view of the prior *Amaltheus*, Montfort, 1810. On p. 127 *Lucina*, R., is much later than the currently accepted Molluscan *Lucina*, Brug. As noting Rafinesque's careless handling of his names, on p. 119 he proposed *Amathusa*, on p. 127 he included *Amathusia*, Fabr., and on p. 146 again uses *Amathusia* as above! I also noted *Cinclus* was used thrice!